Regional San South Sacramento County Agriculture and Habitat Lands Recycled Water, Groundwater Storage, and Conjunctive Use Program

- Cost Effectiveness -

Program Requirements Tab A.2

The South Sacramento County Agricultural and Habitat Lands Recycled Water, Groundwater Storage and Conjunctive Use Program is cost effective. The Benefit-Cost ratio is 2.7 because of the overwhelming value of the ecosystem and water quality public benefits relative to the costs of developing, constructing, and operating and maintaining the program as envisioned. Additional background information is provided below to expand on the previous economic and technical studies that Regional San has completed that further demonstrate the cost-effectiveness of the Program.

Regional San's Board of Directors has established a vision for water recycling that includes the following goals:

- Increase water recycling throughout the Sacramento.
- Increase utilization of recycled water to expand Regional San's treated wastewater management options beyond continued discharge to the Sacramento River.
- Increase recycled water use to reduce demands on existing and future potable supplies.
- Use our water assets in an environmentally responsible manner.

To that end, Regional San has extensively evaluated various alternatives to maximize the use of recycled water in the region in the most cost-effective manner. In 2007, Regional San developed a Water Opportunities Study (WROS) to evaluate and recommend the most promising water recycling projects identified in the region. (https://www.regionalsan.com/sites/main/files/file-attachments/executivesummary_waterrecyclingopportunitiesstudy_srcsd_feb2007.pdf)

The WROS identified the South County Ag Program as one of the most viable water recycling projects to implement. As a result, the next step was taken to conduct a feasibility study. The purpose of the feasibility-level analysis was to further develop the technical, institutional, and financial aspects of the project to allow Regional San and its potential water recycling partners to decide whether or not to move forward with implementation. The development of that Feasibility Study was coordinated with the US Bureau of Reclamation (Bureau). The Feasibility Study was approved and accepted by the Bureau in 2016. The Program is currently listed as an authorized project under Title XVI and the Bureau has determined the Program's Feasibility Study meets the requirements contained in Reclamation Manual Directives and Standards WTR-11-01 for Title XVI feasibility studies. The Program was recently included in a list of Title XVI eligible projects that was transmitted to Congress on July 12, 2017.

The South County Ag Program also has a completed EIR that has been finalized and certified (https://www.regionalsan.com/post/south-county-ag-final-environmental-impact-report). This EIR has also evaluated a variety of alternatives, one of which includes a smaller delivery amount of recycled water. However, the Proposed Program that has been selected has been determined to have the most environmental benefits at the least cost, which is demonstrated by the Benefit-Cost Ratio of 2.7.

The benefits from this program arise from several key program factors, each of which we will analyze, as follows:

- Recycled water is an alternative source of water, and can be used to address the current depression in groundwater levels south of Elk Grove in the Southern Sacramento County area through in-lieu recharge.

- Restoration of groundwater levels in the Southern Sacramento County provide extensive physical public benefits. Ecosystem benefits accrue along the Cosumnes River riparian corridor by reversing the loss of water from the Cosumnes River to the groundwater basin. As a result, the Cosumnes River will gain flow from the rising groundwater, enhancing Fall Run Chinook habitat. The higher groundwater levels translate to more viable riparian wetlands, Sand Hill Crane habitat, managed and unmanaged wetlands and vernal pools. Recreation benefits are also tangible benefits associated with the increase of visitors to the Cosumnes River Preserve associated with increased streamflows to the Cosumnes River, which will sustain resident and migratory fish populations longer into the fall until natural flows increase with fall and winter rains.

- Use of the recycled water to replace groundwater and provide in lieu recharge of the groundwater basin also leads to groundwater banking and conjunctive use of surface water and groundwater by municipal agencies in the Central Groundwater Basin, improving water supply sustainability and reliability. Additional physical non-public benefits are realized as well, such as reduced fertilizer use by farmers, reduced discharge pumping (energy savings) to the Sacramento River, reduced discharge of constituents such as salt to the Sacramento River, reduced groundwater pumping (energy savings) by Farmers both from rising groundwater elevations and supply of recycled water that the farmers do not have to pump, and increased groundwater storage that provide conjunctive use opportunities to help water supply reliability for the region and State.

In addition to the physical benefits described above, there are some other benefits Regional San is considering as it pursues this substantial recycled water, groundwater storage and conjunctive use program, including:

- Helping achieve local, regional and statewide water recycling goals, including helping Regional San to maximize the use of its recycled water to meet its goal of recycling 30 to 40 million gallons per day of its treated wastewater by 2025 and ensuring its highly treated wastewater is put to multiple beneficial uses.

- Helping the region comply with the Sustainable Groundwater Management Act (SGMA). Regional San will work with the groundwater sustainability agency, Sacramento Central Groundwater Authority, and other relevant agency or agencies to operate the Program in a manner that will help facilitate groundwater management plan goals and implementation of SGMA.

To obtain all the physical public and non-public benefits associated with the Program, as well as the important non-physical benefits, there are several alternatives that were considered in the Feasibility Study, Appendix F https://www.regionalsan.com/sites/main/files/file-attachments/20150115_srcsd_southcountyag_rwfs_appendices.pdf

Each alternative is addressed individually and analyzed as to whether there is a more cost effective alternative to the Program, and if so, compared to the proposed Program.

(1) **Alternative 1** - Use of the Sacramento River to convey the recycled water to the Program area - The first alternative that was considered to obtain similar benefits as described above involves removing the 50,000 AFY of water from the Sacramento River further south of Regional San's discharge point through a new intake facility, distribute the water to the south county agricultural community as proposed for the Program, and provide for groundwater storage and all the physical ecosystem and recreational benefits. The cost of the infrastructure was not appreciably different from the Program. However, the permitting associated with a new river intake facility and obtaining the permit for the River conveyance are both judged to be more

difficult to implement than direct delivery to the Farmers and obtaining the Petition for Change. Several of the public and non-public physical benefits (water quality improvement from less salinity discharge, reduced fertilizer use, and reduced pumping to the River) would not be obtained with this alternative. Because it is no less expensive to build and operate and would be more difficult to permit, making its benefits more uncertain, it is not more cost effective than the proposed Program relative to the benefits obtained.

(2) **Alternative 2 -** Use recycled water produced by Regional San's wastewater treatment plant, distribute it to other areas in the County currently using groundwater and attempt to restore groundwater elevations through in lieu recharge. This alternative was studied by Regional San in the Water Recycling Opportunities Study (WROS, 2007), and the South County Program was the only potential project able to achieve the magnitude of recharge benefits because of the concentration of demand for irrigation water in that area relative to the remainder of the County.

(3) **Alternative 3 -** Use recycled water from Regional San's wastewater treatment plant, pump it to the South County Ag Program area for managed recharge. This alternative could be feasible at a smaller scale, but given the limited recharge soils in the area, additional pipeline conveyance would need to extend further up the Cosumnes River, involving more expensive infrastructure. This alternative would require additional permitting and would require more land to be obtained. Hence, taking more time to implement than the Proposed Program and delaying the benefits. Given that the costs would be higher and the benefits delayed, it would be less cost effective than the Program.

(4) **Alternative 4 -** Implement the smaller recycled water program (26,000 AFY) analyzed in the Program EIR. This alternative would have many of the same benefits as the Proposed Program, but at reduced magnitude (fewer ecosystem benefits). Although the costs would be less than the Proposed Program, they would not achieve a benefit/cost ratio as high as 2.7. Therefore, it would not be as cost effective as the Proposed Program.

(5) **Alternative 5 -** Use surface water instead of recycled water, distribute it to South County Ag Program area and allow the groundwater supply recover. Although the benefits of this alternative would be similar to Alternative 1, it would involve Regional San purchasing surface water instead of using its own recycled water that it produces and this would be extremely costly. Hence, it would be less cost effective than the Proposed Program.

(6) **Alternative 6 -** Pump Groundwater from the south end of the Program Area for use in the north. This Alternative would require very similar infrastructure and would not achieve the water quality benefits and would not be as effective in restoring overall groundwater levels across the Southern Sacramento County area. Therefore, this would not be cost effective relative to the Proposed Program.

As highlighted above, through the extensive studies by Regional San over the last decade, and by the Sacramento County Water Agency recently, there has not been a comparable cost effective program developed to compete with this South County Agriculture and Habitat Lands Recycled Water, Groundwater Storage, and Conjunctive Use Program.